FOREST INSECT CONDITIONS ON THE SAWTOOTH NATIONAL FOREST 1969

This report is a record of major insect conditions on the Sawtooth National Forest for 1969. Information for the report was compiled from aerial detection surveys, on-the-ground biological evaluations, and specific infestation centers, or potential problem areas reported by the Forest staff. Any comments or questions concerning this report should be directed to the Boise Zone Office.

Increasing levels of Douglas-fir beetle activity were noted throughout the Northern Division this year. Especially significant were buildups observed along the South Fork of the Boise River and its tributaries. Losses in lodgepole pine continued at fairly high levels as epidemic populations of mountain pine beetle persisted on the Southern Division, Fairfield, and Ketchum Ranger Districts. Spruce budworm defoliation was so light as to be undetectible from the air; however, ground evaluations in the Big Smoky area revealed light defoliation in certain locations. Weeviling of terminal and lateral branches of lodgepole pine saplings continued at a relatively high rate in the Sawtooth Valley. Engraver beetles (Ips) and western pine beetle activity on the Shake Creek Ranger District decreased noticeably in ponderosa pine stands.

DOUGLAS-FIR BEETLE - Dendroctonus pseudotsugae Hopk.

Epidemic populations of Douglas-fir beetle caused alarming losses in the South Fork of the Boise River and its tributaries this year. This strong, upward trend in beetle activity is the result of population buildups which started following winter storms of 1964-1965. Wind-thrown and snow-toppled Douglas-fir provided excellent habitat for the beetles transition from endemic to epidemic status. Following is a quantitative comparison of several representative drainages, illustrating increases in Douglas-fir beetle activity, as recorded during annual aerial surveys.

Drainage or Area	Estimated No. of Attacked Trees 1967	1968
Boardman Cr.	50	300
Salt Cr.	0	290
W. Fork of Kelley Cr.	60	180
Abbott Gulch	20	180
Shake Cr.	10	50
Deadwood Cr.	10	70
	150	1,070

In November, the Boise Zone Office was requested to compile a summary report for the Washington Office citing number of acres infested by attacking insect and host. The following table summarizes Douglas-fir beetle activity over the last three-year period as determined from aerial surveys.

Year	Infested Acreage	Remarks
1967	1,250	
1968	1,020	Does not include the Sublette or Southern Division
1969	5,550	

Forest-wide there was an increase of Douglas-fir beetle activity as a result of 1968 attacks.

At the present time, losses on the Sublett Division have undergone a marked decline compared with tree killing experienced in the past. This undoubtedly resulted from the bulk of susceptible Douglas-fir type being removed by logging, and severe host depletion by the beetle that has taken place over the past five years.

In Lake Creek and the North Fork of the Wood River, snow avalanches caused considerable damage to timber stands. Douglas-fir mixed with alpine firs were uprooted, broken off and scattered through slide run-out paths. An evaluation showed Douglas-fir beetles attacking the downed trees.

Lake Creek has an access road which was overrun in several places by the snow slides. In these areas, salvage logging was utilized to clean up avalanche felled trees. Due to the steepness of the canyon walls, salvage was only possible in bottom areas. Considerable amounts of felled timber had to be left up the steep slide paths which could possibly provide buildup areas for the beetle.

Even if Douglas-fir beetles cause increased losses in Lake Creek, it is doubtful if any salvage or logging for control will be attempted due to the steepness of terrain.

Several snowslides brought down quantities of Douglas-fir and other species east of Ketchum along Trail Creek. Here again salvage logging was utilized to clean up as much timber as could be reached. Some Douglas-fir beetle activity is expected as a result of the slides.

The Fairfield Ranger District is initiating a salvage sale in an effort to remove standing infested trees in and adjacent to the terminated Williams-Rosetta Sale. Apparently, heavy snows and wind during January 1969 caused

considerable top breakage and toppling of whole trees on the Northern Division, which in turn became excellent buildup material for the Douglas-fir beetle. It is commendable that the District recognized this problem and is initiating a salvage sale to clean up as much of the merchantable trees as possible before they produce beetle populations.

MOUNTAIN PINE BEETLE - Dendroctonus ponderosae Hopk.

This destructive bark beetle has shown no tendency in the last two years to decline from its present high-level of activity. Although current buildup ratios are not as great as has been experienced in the past, bark beetle populations continue to inflict heavy losses in remaining large diameter saw-timber. Infested lodgepole stands in the Big Smoky drainage on the Fairfield Ranger District, in Warm Springs Creek on the Ketchum Ranger District, and in most of the lodgepole type on the Twin Falls Ranger District are examples of this type of infestation. Biological evaluations in Red Warrior Creek and Wells Summit, indicates mountain pine beetle activity will continue at its present high level, at least through the next field season. In Castle Creek on the Ketchum Ranger District and Grindstone Creek on the Fairfield Ranger District, populations are declining due to depletion of suitable host type.

A preventive spray project using mistblown lindane on 670 overmature lodgepole pine in and adjacent to recreation facilities was initiated in June on the Fairfield District. This project was based on protecting esthetic values and maintaining a predetermined amount of basal area. Evaluation of the project in November showed excellent results. The spray project area was comprised of five campgrounds and a 10-unit summer home area. At the outset of the project, it was determined that no spraying would be done within 30 feet of running water to avoid contamination of aquatic habitat.

During the evaluation of the preventive spray areas, no new hits were detected to sprayed trees at the Boise Junction, Narrows, or Five Points Campgrounds. Two untreated trees close to the water were attacked at the Narrows and Canyon Campgrounds. Six new attacks were detected in the Big Smoky Bar area which is an undeveloped site. Four of these trees had been sprayed. One hit is an apparent pitchout and the other three contain moderate broods. Two other new attacks were found in untreated trees along the water's edge. In the Big Smoky summer home area only one new pitchout, or unsuccessful attack, was detected.

Bounds Campground, which is the best developed and heaviest used recreational facility on the Fairfield District, had thirteen new attacks. It is significant to note this area was not preventatively sprayed, as time and money were not available to cover all areas needing treatment. However, the inclusion of this unit is recommended for the 1970 project.

Overall, the preventive spray program was highly successful. It is recommended that this spray protection be continued on the previously treated trees, plus an additional 330 trees in the adjacent high-use areas.

Detailed evaluations were made to accompany and support the request of the Ketchum Ranger District for a similar preventive spray program along the Big Wood River and the North Fork recreational sites. These areas contain developed campgrounds, organizational camps, and summer homes. This year's biological evaluations indicate high-brood survival on these sites and we predict losses at an increasing rate, unless a preventive spray program is initiated.

A request for funding basal area surveys in five priority areas has been submmitted by this office with an evaluation of current mountain pine beetle activity. Continued losses, especially in the Big Wood River Campground, have already left several family units shade deficient. This year 75 newly attacked trees were detected in this development. Also, several recreational facilities and organizational campsites, which collectively have over 10,000 visitor day use per season, are under consideration for a supplemental preventive spray project. In consideration of the high level of mountain pine beetle activity, plus availability of suitable host material to sustain the infestation, it is recommended that a preventive spray project be undertaken on the Ketchum Ranger District in designated areas during 1970. If this is not done, continued losses at an accelerated rate can be expected in the campsites and organizational camp areas.

Due to conflicts in work scheduling and reassignment of priorities, biological evaluations of mountain pine beetle activity on the Southern Division were not made during 1969. Historically, the mountain pine beetle has shown considerable activity in this area and periodically builds up to epidemic levels and then declined. Stands in this area are relatively low quality, overmature, heavily mistletoed, and of low vigor. The question has arisen from time to time whether or not this area should be considered for control. At the present, it would seem this would not be justifiable as there is no mill capacity in the area to accommodate the fairly small diameter trees. Also, the cost-benefit ratio of a chemical control project could not be justified.

SPRUCE BUDWORM - Choristoneura fumiferana complex.

In the past, spruce budworm populations in the vicinity of Big Smoky have shown large fluctuations from year to year. Thus, we have observed years of heavy defoliation followed by periods of moderate to low activity. No chemical control has been undertaken in the Big Smoky infestation, other than a small-scale Zectran pilot test in 1967. In 1968 discernible defoliation was noted in the Couch Summit, Boardman, North Fleck Summit, and Sydney Butte areas; also, budworm feeding damage was observed in Salt Creek, Bounds Creek area. During 1969 damage was not detected from the air. However, followup on-the-ground defoliation counts revealed light budworm activity. The 1969 defoliation is as follows:

Area	Actual Defoliation in Percent
No. Fleck Summit	18.3
Boardman Cr.	3.6
Sydney Butte	3.5
Couch Summit	4.1

From egg mass sampling conducted in 1968 it was predicted that 1969 defoliation intensities would be light. This prediction was substantiated, as can be seen from the foregoing figures.

As knowledge is gained through refinement of sampling techniques and development of new biological assessment procedures, we are able to arrive at more finite reporting methods. Entomologists in the Regional Office have redesigned the present egg mass sampling system which hopefully will more adequately depict Intermountain budworm populations. Regional sampling crews collected egg masses from several locations on the Forest during the fall of 1969. It is from these collections and examination of foliage that we are predicting light, or less than 15 percent, defoliation of new growth during the 1970 field season.

Following is a table depicting the last four years' fall egg mass counts. The 1969 collections are a basis for which 1970 predictions are made:

Sample Locations	No. Egg Masses Per 1,000 Square Inch of Foliage				Predicted Defoliation for 1970
	1966	1967	1968	1969	
Couch Summit	8.7	1.7	9.9	0.0	< 15%
Boardman Cr.	3.2	2.1	1.8	0.0	< 15%
No. Fleck Summit	11.4	5.6	5.4	1.2	< 15%
Sydney Butte	4.8	4.4	2.3	1.4	< 15%

LODGEPOLE PINE TERMINAL WEEVIL - Pissodes terminalis Hopp.

Weeviling of terminals and laterals of lodgepole pine saplings invading sagebrush flats in Sawtooth Valley increased significantly during 1969.

In 1967 three plots, consisting of 100 trees each, were established north of Alturas Lake to evaluate the long-range effects of this weevil on young lodgepole pines.

After two years' observations, it is quite evident that this weevil is capable of seriously deforming lodgepole pines. Affected trees, whose terminals have been destroyed, usually develop a "crook" at the site of the last branch whorl. This apparently is caused when laterals turn upward in an effort to assume the dead terminals position. In addition to causing "crooks" or bends in the tree's bole, one year's vertical development of the tree is lost.

When this evaluation study was initiated, it was recognized that the study would take several years before overall impacts to the stands could be measured. It is our intent to study the biology of this weevil from year to year as well as document damage to the stand. The end result of this will be an accurate assessment of ultimate impacts on merchantability of weeviled trees and hopefully ideas on how to minimize or prevent weevil damage in the future.

Following is a table depicting 1968 weevil activity as compared with the 1969 observations.

Lodgepole Pine Terminal Weevil Study Plots 1, 2, and 3.

	19 8 Number of Trees				19 9 Number of Trees			
Plot No.	NW	OA	NA	Total	NW	OA	NA	Total
1	20	78	2	100	15	50	35	100
2	34	61	5	100	17	44	39	100
3	4	66	30	100	1	30	69	100

NW--Non-Weeviled; OA--Old Attacks; NA--New Attacks.

Of the three study plots evaluated this year, number three showed the largest increase in weeviled terminals and laterals. Sixty nine percent of the study trees on this plot incurred damage. Fifteen percent of the trees had both terminal and lateral weeviling.

At the present time, weevil damage in lodgepole stands has been found on portions of the Challis National Forest, throughout Sawtooth Valley, and south of Galena summit wherever lodgepole pine is found. To date, no effective controls are known for this pest.

In the past, considerable confusion has centered around what procedures are to be followed when a potentially serious insect infestation is detected. Procedures are spelled out in the F.S.M. (5200 series) and supplements to parent material. We feel that the manual directives are sufficient; however, it may be helpful if procedures were outlined in a more or less simplified manner. With this in mind, the following is presented for your consideration:

Evidence of insect activity detected.

Fill out 5200-1.

Forest Pest Detection Field Report.

If confused - consult FSM 5221.1 and

R-4 Supplement, August 1965, No. 131.

Mail 5200-1, and well prepared specimens

To: U.S.F.S. - Division of T.M.
Boise Zone Office
3320 Americana Terrace
Boise, Idaho 83706

In cases where immediate action is necessary. Call the Boise Zone Office, 342-2711, ext. 2345.

F.T.S. No. 342-2345

Entomologists at the Zone Office will:

1. Acknowledge your report.
2. Determine if a biological evaluation is necessary. In some cases an evaluation may not be necessary as previous knowledge of the problem may have already been documented.

Biological Evaluation of Infestation

When an evaluation is deemed necessary the zone entomologists will:

1. Contact District of staff personnel and set date for evaluation. In many cases it is not necessary for District or staff personnel to accompany entomologists on evaluations unless they so desire.
2. Make a biological evaluation of the problem area.
3. Prepare a written report to the Forest on biological evaluation findings. This report may or may not recommend control.

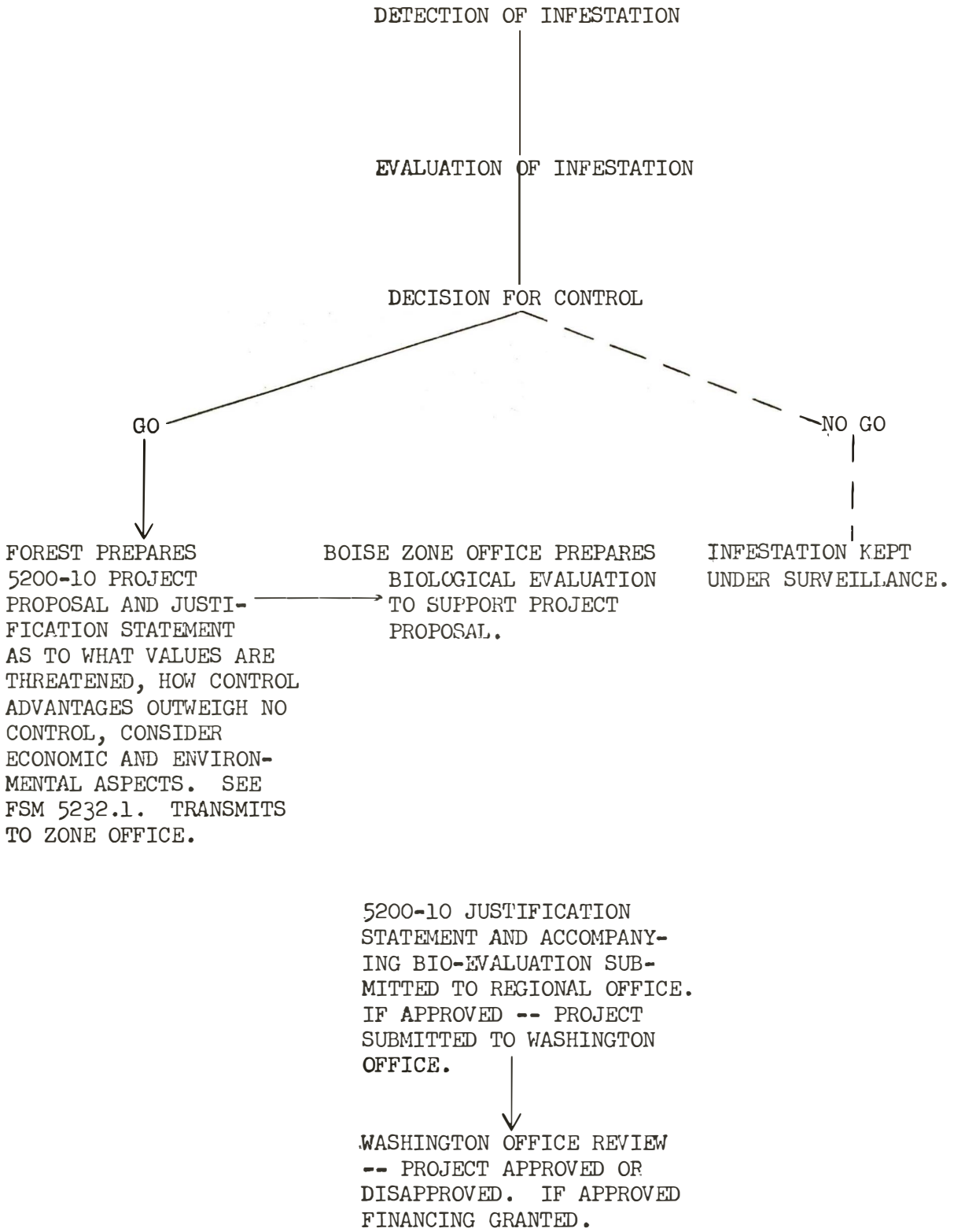
Information in this report will be in sufficient detail so that the land manager can make a GO -- NO GO decision on control.

If the decision is "GO" for control, the following steps should be followed:

1. Forest staff will make a resource evaluation as recommended in FSM 5204.4 R-4 Supplement 33, July 1964.
2. Then the Forest will prepare a 5200-10, Project Proposal and justification statement. This can be at the District or Supervisor's Office level.
3. The completed 5200-10 should be submitted directly to the Boise Zone Office.

A finalized biological evaluation will be prepared by Zone Office personnel. This will be attached to the 5200-10 and both will be sent to the Regional Office.

The same procedures can be shown
in the following diagrammatic form.


DETECTION OF INFESTATION
EVALUATION OF INFESTATION
DECISION FOR CONTROL
GO
NO GO
FOREST PREPARES 5200-10 PROJECT PROPOSAL AND JUSTIFICATION STATEMENT AS TO WHAT VALUES ARE THREATENED, HOW CONTROL ADVANTAGES OUTWEIGH NO CONTROL, CONSIDER ECONOMIC AND ENVIRONMENTAL ASPECTS. SEE FSM 5232.1. TRANSMITS TO ZONE OFFICE.
BOISE ZONE OFFICE PREPARES BIOLOGICAL EVALUATION TO SUPPORT PROJECT PROPOSAL.
INFESTATION KEPT UNDER SURVEILLANCE.
5200-10 JUSTIFICATION STATEMENT AND ACCOMPANYING BIO-EVALUATION SUBMITTED TO REGIONAL OFFICE. IF APPROVED -- PROJECT SUBMITTED TO WASHINGTON OFFICE.
WASHINGTON OFFICE REVIEW -- PROJECT APPROVED OR DISAPPROVED. IF APPROVED FINANCING GRANTED.